

WHAT IS CLAIMED:

1. A composite expandable device for delivery into a vessel carrying blood comprising an expandable support frame having first and second end portions, an impervious polymer sleeve extending over the support frame and having inner and outer surfaces, and a coating disposed on at least one of the inner and outer surfaces of the polymer sleeve for enhancing endothelial cell growth on the polymer sleeve.
2. A device as in Claim 1 wherein both the inner and outer surfaces are coated with the coating.
3. A device as in Claim 1 wherein the first and second end portions are exposed and free of the sleeve.
4. A device as in Claim 1 wherein said expandable support frame and polymer sleeve are cylindrical.
5. A device as in Claim 1 wherein said expandable support frame and polymer sleeve are tapered.
6. A device as in Claim 1 wherein said expandable support frame is constructed to maintain its length during expansion of the frame.
7. A device as in Claim 1 wherein said expandable support frame includes a plurality of axially aligned belts and first and second end portions, each of said belts comprising a plurality of circumferentially spaced struts having first and second ends and foldable links secured to the first and second ends of the struts and interconnecting means serially interconnecting the belts and the first and second end portions to extend along an axis and permitting axial bending between the belts and the end portions while maintaining the length of the device.

8. A device as in Claim 7 wherein said interconnecting means includes at least one strut and a plurality of S-shaped links.

9. A device as in Claim 7 wherein said  
5 interconnecting means includes a single strut and first and second S-shaped links, all spaced 120° apart.

10. A device as in Claim 7 wherein said interconnecting means between adjacent belts are offset angularly with respect to each other.

10 11. A device as in Claim 10 wherein said end portions are sinusoidal.

12. A device as in Claim 7 further including radiopaque markers carried by the end portions.

13. A device as in Claim 1 wherein said sleeve is  
15 provided with a fold and further including means for securing said label to said sleeve to inhibit dislodging of the sleeve from the frame during deployment of the device.

14. A delivery apparatus for an expandable device having a length and an inner diameter comprising a shaft, a balloon mounted on the shaft, said shaft having a lumen therein for inflating and deflating the balloon, said  
5 balloon being formed with proximal, distal and intermediate portions, said intermediate portion having a length to receive the expandable device, and radiopaque markers carried within the proximal and distal portions of the balloon and sized so that they have a diameter greater than  
10 the inner diameter of the expandable device when it is mounted on the intermediate portion of the balloon for securing the expandable device to the intermediate portion to prevent the expandable device from being dislodged during deployment by the delivery apparatus, the proximal and  
15 distal portions of the balloon being sized so that they have a size which is greater than the size of the expandable device when placed on the intermediate portion to inhibit inadvertent dislodgment of the expandable device during deployment of the expandable device with the apparatus.

15. A method for deploying a plurality of composite expandable devices comprising an expandable frame having opposite ends at proximal and distal extremities, a polymeric sleeve extending over the frame, with the use of  
5 a balloon delivery catheter having an inflatable balloon on the distal extremity thereof comprising the steps of mounting a first composite expandable device on the balloon, utilizing the balloon delivery catheter to deliver the device to the desired site in the vessel, inflating the  
10 balloon to expand the device in the vessel, deflating the balloon and removing the balloon from the vessel, utilizing a balloon delivery catheter to deliver a second composite expandable device to the site and docking the distal extremity of the additional composite expandable device in  
15 the proximal extremity of the first composite device already in place by causing the extremities to intermesh with each other, expanding the balloon to expand the second composite expandable device to expand the distal extremity within the proximal extremity of the composite expandable device  
20 already in place to complete the docking and deflating the balloon and removing the balloon delivery catheter from the vessel.

16. A method as in Claim 15 wherein the first device is a tapered device.